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New and little-known Species of the Genus *Phyllonorycter* of Japan (Lepidoptera, Gracillariidae, Lithocolletinae)

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Abstract *Phyllonorycter matsudai* sp. nov. (host: *Quercus mongolica* var. *grosseserrata*) is described from Japan (Hokkaidô and Honsyû). *Phyllonorycter ginnalae* (ERMOLAEV), comb. nov., recently described from the Far East of U. S. S. R., is recorded from Japan (Honsyû) for the first time with its redescription. The females of *Phyllonorycter turugisana* (KUMATA), *P. maculata* (KUMATA), *P. dakekanbae* (KUMATA) and *P. bifurcata* (KUMATA) are also described for the first time, with a host record of *P. turugisana*.

Introduction

The genus *Phyllonorycter* HÜBNER, 1822 (= *Lithocolletis* HÜBNER, 1825) is a large group containing more than 500 described species, and is distributed almost all over the world. Up to the present, 61 species have been recorded from Japan by ISSIKI (1930 and '57), MATSUMURA (1931), MEYRICK (1935), KUMATA (1957, '58, '63, '67 and '82) and KUMATA & PARK (1978). The larvae of the genus are, so far known, leaf miners on various plants, and in Japan occurring mostly on Fagaceae, Betulaceae, Rosaceae, Ulmaceae, Aceraceae, Salicaceae or Juglandaceae.

In this paper 2 species will be added to the Japanese fauna of the genus. One of them is new to science and has been reared from larvae mining in the leaves of *Quercus mongolica* var. *grosseserrata* (Fagaceae) in Hokkaidô and Honsyû. The other one, *P. ginnalae* (ERMOLAEV) which was recently described from the Far East of U. S. S. R., has also been reared from *Acer ginnala* (Aceraceae) in central Honsyû. Moreover, the females, hitherto unknown, of *P. turugisana* (KUMATA), *P. maculata* (KUMATA), *P. dakekanbae* (KUMATA) and *P. bifurcata* (KUMATA) will be described herewith. The food plants of *P. turugisana*, *Carpinus cordata*, *C. laxiflora* and *Ostrya japonica* (Betulaceae), will be recorded for the first time.

The specimens used in this paper were collected by the writer unless otherwise stated. The holotype of the new species described here is deposited in the Entomological Institute, Hokkaidô University.

Acknowledgements. Before going further, the writer wishes to express his cordial thanks to the following gentlemen for their kindness in offering material and in helping him in various ways: Prof. S. TAKAGI of Hokkaidô University, Sapporo; Prof. H. KUROKO and Dr. F. KOMAI of University of Ôsaka Prefecture, Sakai; Dr. K. KUSIGEMATI of Kagosima University, Kagosima; Prof. I. TOGASHI of Isikawa Prefecture College of Agriculture, Turuki-mati, Isikawa-ken; and Mr. S. MATSUDA, formerly a student at Hokkaidô University.

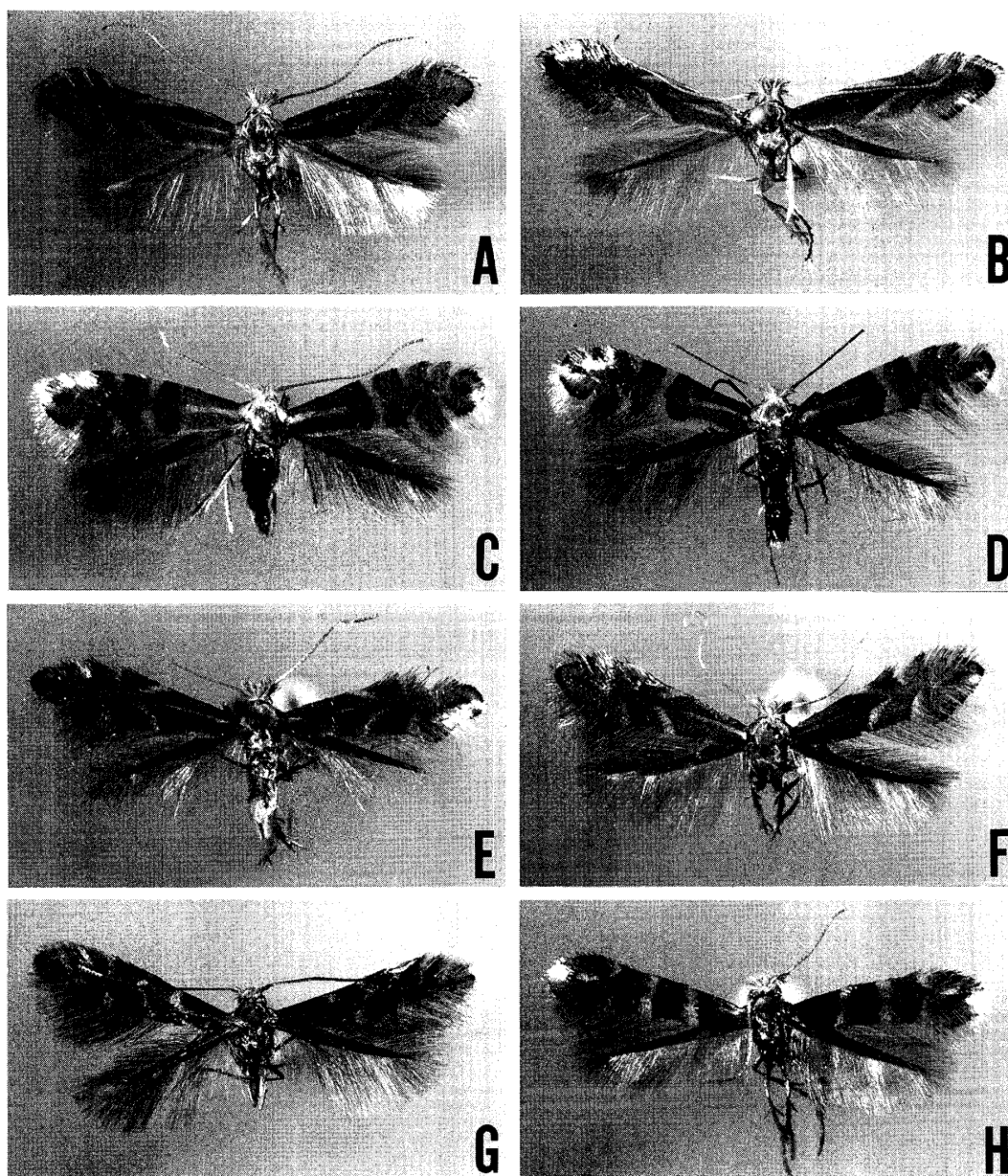


Fig. 1. Moths of *Phyllonorycter* spp. A. *P. matsudai* sp. nov. (holotype); B. *Ditto* (♂, paratype, Ōnuma, Osima, Hokkaidō, Grc-2319); C. *P. ginnalae* (ERMOLAEV) (♀, Kaida, Kiso, Nagano-ken); D. *Ditto* (♂, Kaida, Kiso, Nagano-ken); E. *P. turugisana* (KUMATA) (♂, Moiwa, Sapporo, Hokkaidō, ex *Ostrya japonica*); F. *Ditto* (♀, Yûbari, Sorati, Hokkaidō, ex *Carpinus cordata*, Grc-2343); G. *P. dakekanbae* (KUMATA) (♂, Sapporo, Hokkaidō, ex *Betula platyphylla* var. *japonica*, Grc-2658); H. *P. bifurcata* (KUMATA) (♂, Izuhara, Tusima, ex *Celtis jessoensis*, Grc-2964).

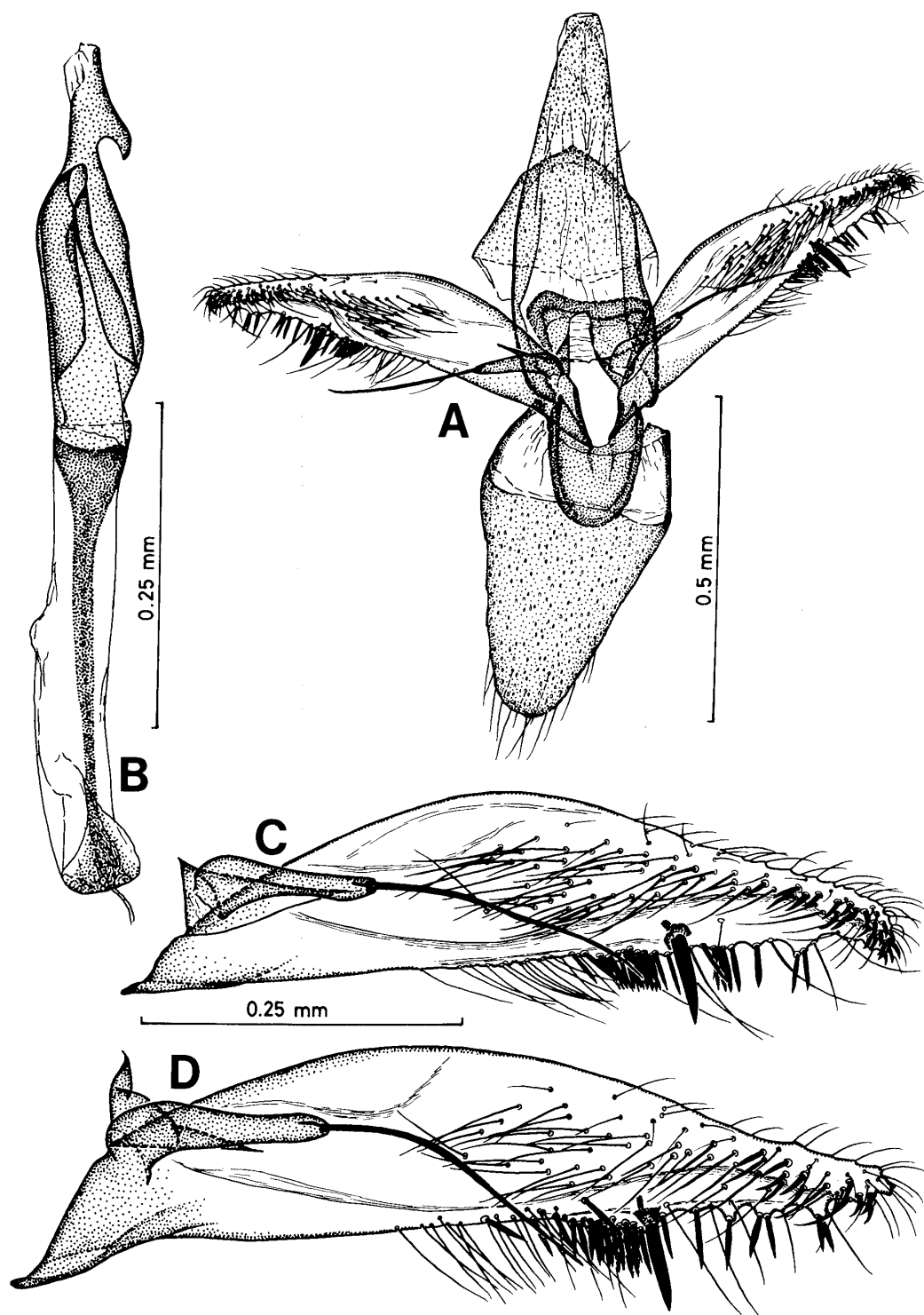


Fig. 2. *Phyllonorycter matsudai* sp. nov. A. Male genitalia in ventral view (aedoeagus omitted) (Genitalia slide no. Grc-2321, Ônuma, Hokkaidô); B. Aedoeagus (*ditto*); C. Right valva (*ditto*); D. *Ditto* (holotype).

Descriptions of Species

Phyllonorycter matsudai sp. nov.

[Figs. 1 (A & B), 2, 4 (A - D)]

♂ ♀. Expanse of wings : 6.8 – 8.2 mm (8.0 mm in holotype, and 7.7 mm in average of 9 specimens). Length of fore wing : 3.4 – 4.0 mm (4.0 mm in holotype, and 3.8 mm in average of 9 specimens).

Colour : Face and palpi shining white ; labial palpus apically darkened outside in most specimens ; tuft on head golden ochreous, mixed with a few white hairs in centre. Antenna whitish, without dark annulations ; apical segment blackish ; scape with a longitudinal dark line on upper side ; pecten white. Thorax clear golden-ochreous on dorsal surface, with 3 longitudinal, narrow, white stripes, the lateral ones confluent anteriorly through white patagia ; pleural and ventral surfaces brilliant white. Legs whitish ; fore femur and tibia fuscous on inner side, the tarsus indistinctly fuscous-spotted at apex of each segment in a few specimens.

Fore wing clear golden ochreous, with markings silky whitish ; medio-basal streak extending to basal $2/5$ of wing, very slender, nearly parallel to costa, partly edged with dark scales ; dorso-basal streak narrow, shorter than the medio-basal ; 4 costal and 2 dorsal strigulae finely edged with black scales inwardly ; 1st costal strigula situated in middle of wing, very oblique, pointed apically, always prolonged along costa nearly to base of wing ; 2nd to 4th costal strigulae small, wedge-shaped ; 1st dorsal strigula opposite the 1st costal, long, oblique, pointed apically, usually detached from dorso-basal streak ; 2nd dorsal strigula at tornus, nearly parallel to the 1st, but shorter ; apical blackish dot indistinct, sometimes prolonged into a narrow streak ; cilia ochreous-whitish, very finely edged with a dark line along apex ; fringe-line in cilia blackish, narrow, preceded by a pale lilac shade. Hind wing pale gray ; cilia ochreous-whitish.

Male genitalia : Symmetrical. Tegumen simple, rounded apically ; tuba analis finely covered with microspines on its apical area ; 8th tergite with a few slender setae along caudal margin. Valva rather slender, widest in middle, then tapering basally and apically, but the ventral margin being more or less straight ; a long and very stout seta arising from apical $1/3$ of ventral margin of valva ; some shorter and moderately stout setae and many slender and long setae distributed along ventral margin and on inner face of apical half of valva ; costal process slender, about $1/4$ as long as valva, with filament-like seta reaching apical $1/3$ of valva and sinuate ; transtilla well developed. Aedoeagus a little longer than valva, straight, with a pair of narrow membranous ridges along apical $1/3$ and with a beak-shaped barb near apex. Saccus $1/4$ to $1/3$ as long as valva, rounded apically. Flap-like 8th sternite spatulate, rounded apically. (Five slides examined.)

Female genitalia : Symmetrical. Papilla analis short, covered with moderately long setae and microspines ; apophysis posterioris moderately long, slightly widened

on basal half. Eighth abdominal segment rather long, about twice as long as papilla analis, weakly sclerotized, not covered with scales or setae; apophysis anterioris about $2/3$ as long as apophysis posterioris. Sinus vaginalis moderately large; sterigma sclerotized on its caudal half, the caudal margin being very slightly convex; ductus bursae slender, long, membranous in whole length; corpus bursae pyriform or globular, with a weakly sclerotized, elliptical patch, which has a pair of small cone-shaped signa in the centre. Ductus seminalis arising from cephalic margin of sterigma; bulla seminalis pyriform or ellipsoidal, about 1.5 times as large as corpus bursae. (Three slides examined.)

Leaf mine: A large, tentiform blotch mine situated on lower surface of leaf, usually occurring on space between 2 lateral veins. Lower epidermis of mining part with a median fold. Black excrements gathered at a side of mine cavity.

Specimens examined: 6 ♂♂ & 3 ♀♀. Holotype: ♂, Yûbari, Sorati, Hokkaidô, em. 16/v/1978, ex *Quercus mongolica* var. *grosseserrata* (1734), Genitalia slide no. Grc-2320. Paratypes: 3 ♂♂ & 2 ♀♀, Moiwa, Sapporo, Hokkaidô, 1-2/vi/1978, S. MATSUDA leg.; 2 ♂♂, Ônuma, Osima, Hokkaidô, em. 20-22/v/1978, ex *Q. m.* var. *grosseserrata* (1787); 1 ♀, Kimitôge, Wakayama-ken, Honsyû, 24/v/1971, F. KOMAI leg.

Food plant: *Quercus mongolica* FISCHER var. *grosseserrata* REHDER et WILSON (Fagaceae).

Distribution. Japan (Hokkaidô; Honsyû).

Remarks. *P. matsudai* belongs to the *rajella* group on account of the presence of the costal process of the valva. In colour pattern it is more or less similar to the European *P. manni* (ZELLER) and Japanese *P. kamijoi* (KUMATA), both of which also feed on *Quercus* spp., but it is easily separated from the latter two by the genital structures of both the sexes, especially by the shape of valva and aedoeagus. It is also similar to *P. pseudolautella* (KUMATA) and *P. pygmaea* (KUMATA) in structure of aedoeagus, but is clearly distinguished from the latter two by the paler ground colour of the fore wing and by the absence of a median transverse fascia on the fore wing. In *P. pseudolautella* and *P. pygmaea*, the fore wing is reddish-brown with golden reflections in ground colour, and has a transverse median fascia, 2 costal and 1 or 2 dorsal strigulae, all of which are silvery white in colour.

This new species is named after Mr. S. MATSUDA in honour of his kind help in collecting material during his student time at the Entomological Institute, Hokkaidô University.

Phyllonorycter ginnalae (ERMOLAEV), **comb. nov.**

[Figs. 1 (C & D), 3, 4 (E-H)]

Lithocolletis ginnalae ERMOLAEV, 1981, Proc. zool. Inst. Acad. Sci. U. S. S. R., **103**: 87, f. 4.

♂♀. Expanse of wings: 6.0-7.8 mm (7.0 mm in average of 15 specimens). Length of fore wing: 3.0-3.9 mm (3.5 mm in average of 15 specimens).

Colour : Face and palpi silvery whitish ; tuft on head whitish, anteriorly mixed with ochreous-brown hairs. Antenna silvery whitish, slightly annulated above with fuscous, the annulations diminishing towards apex of antenna ; apical segment blackish ; scape narrowly ochreous-brown on upper side ; pecten silvery whitish. Thorax clear golden ochreous on dorsal surface, with a whitish, broad, reversedly U-shaped mark running along inner margins of tegulae ; a whitish dot at posterior corner of mesonotum ; pleural and ventral surfaces silvery white. Fore leg fuscous, the femur whitish outside, the tarsus having 3 whitish rings, the first at base, the 2nd at middle and the last at apex ; mid and hind legs silvery whitish, mid tarsus having a blackish subapical ring, hind tibia and 1st segment of hind tarsus somewhat darkened on upper side.

Fore wing golden brown, slightly darker than thorax, with 2 basal streaks, 1 median fascia, 3 costal and 2 dorsal strigulae silvery whitish, the fascia and strigulae being conspicuously edged with black scales internally ; medio-basal streak occupying about basal 1/3 of wing, straight, very finely edged with black on upper margin ;

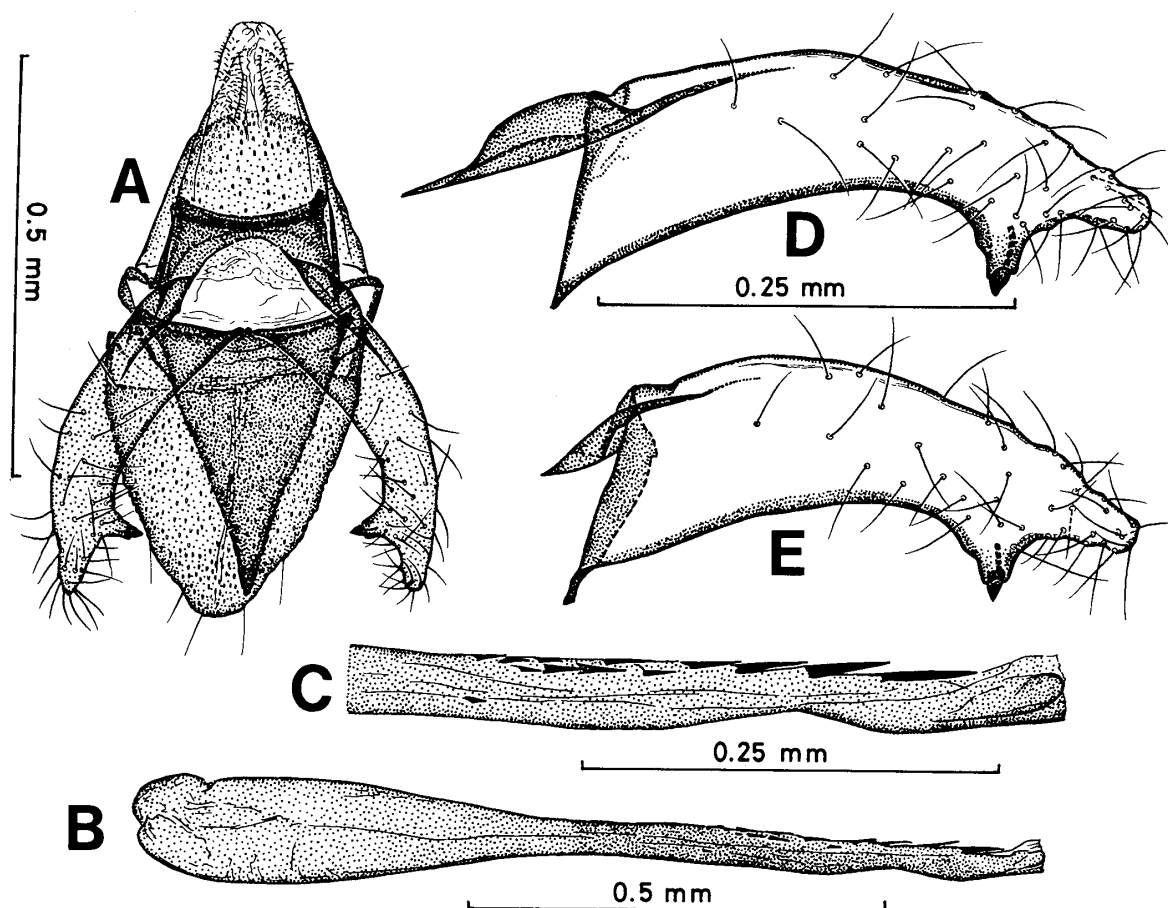


Fig. 3. *Phyllonorycter ginnalae* (ERMOLAEV). A. Male genitalia in ventral view (aedoeagus omitted) (Grc-2055, Kaida, Nagano-ken) ; B. Aedoeagus (*ditto*) ; C. Apical part of aedoeagus, enlarged (*ditto*) ; D. Right valva (*ditto*) ; E. *Ditto* (Grc-2955, Kaida, Nagano-ken).

dorso-basal streak very narrow, nearly as long as medio-basal ; median fascia roundly arched outwardly, broader than strigulae ; costal strigulae arranged nearly equidistantly between median fascia and apex of wing, rather small, triangular or wedge-shaped ; 1st dorsal strigula at tornus or opposite the 1st costal, extending to nearly half width of wing, the apex usually reaching median portion between apices of 1st and 2nd costal strigulae ; 2nd dorsal strigula about half as long as the 1st dorsal, sometimes indistinct ; apical dot elliptical, conspicuously blackish ; cilia ochreous-whitish ; fringe-line in cilia blackish, interrupted at 2nd dorsal strigula, and widely preceded by a purple-brown shade. Hind wing dark gray ; cilia grayish-ochreous.

Male genitalia : Symmetrical. Tegumen rather short, simple, rounded apically ; tuba analis densely covered with microspines on inner face. Valva moderately long, arched upwardly, slightly narrowed towards round apex ; a large projection at apical 1/4 of ventral margin of valva, with a very short and stout seta arising from top of the projection ; some slender setae scattered on inner face of valva ; costal process absent ; transtilla very large, quadrangular in outline. Aedoeagus very long, a little more than 3 times as long as valva, straight, tubular, swollen basally, with 10 to 15 acute spines arranged along inner side of apical half. Saccus a little shorter than valva, triangular, pointed apically. Flap-like 8th sternite slightly longer than saccus, semielliptical in outline. (Four slides examined.)

Female genitalia : Symmetrical. Papilla analis moderate in length, densely covered with setae and microspines ; apophysis posterioris very long, a littler longer than 7th abdominal segment, slightly broadened on its basal 1/5. Eighth abdominal segment weakly membraneous except along its cephalic margin, not covered with scales ; apophysis anterioris about 2/3 as long as apophysis posterioris. Sinus vaginalis moderately large ; sterigma triangular, sclerotized on entire surface, the caudal margin being strongly convex ; ductus bursae slender, long, weakly sclerotized on caudal 1/4, then remaining cephalic 3/4 membraneous and crumpled ; corpus bursae globular, with a weakly sclerotized, elliptical patch having a pair of small cone-shaped signa in the centre. Ductus seminalis arising from the cephalic end of sclerotized part of ductus bursae, very short ; bulla seminalis ellipsoidal, about 2 times as large as corpus bursae. (Four slides examined.)

Leaf mine : A tentiform blotch mine situated on lower surface of leaf, arbitrarily in disc between 2 veins, rather small, 8–12 mm in long diameter, dark brownish in colour. Lower epidermis of mining part with a rather strong median fold. Black excrements gathered at a side of mine cavity.

Specimens examined : 26 ♂♂ & 19 ♀♀, 14 ♂♂ & 11 ♀♀, Kaida, Kiso, Nagano-ken, Honsyû, em. 15–24/vii/1975, ex *Acer ginnala* (1439) ; 12 ♂♂ & 8 ♀♀, ditto, em. 26–30/iv/1976, ex *A. ginnala* (1569).

Food plant : *Acer ginnala* MAXIMOWICZ (Aceraceae) in Japan and U. S. S. R.

Distribution. Japan (Honsyû) ; and U. S. S. R. (Far East).

Remarks. *P. ginnalae* is new to the fauna of Japan. It may belong to the *ulmifoliella* group in having the simple valva without costal process or a long filament-like seta, but it is a very peculiar species being distinguished from any other members

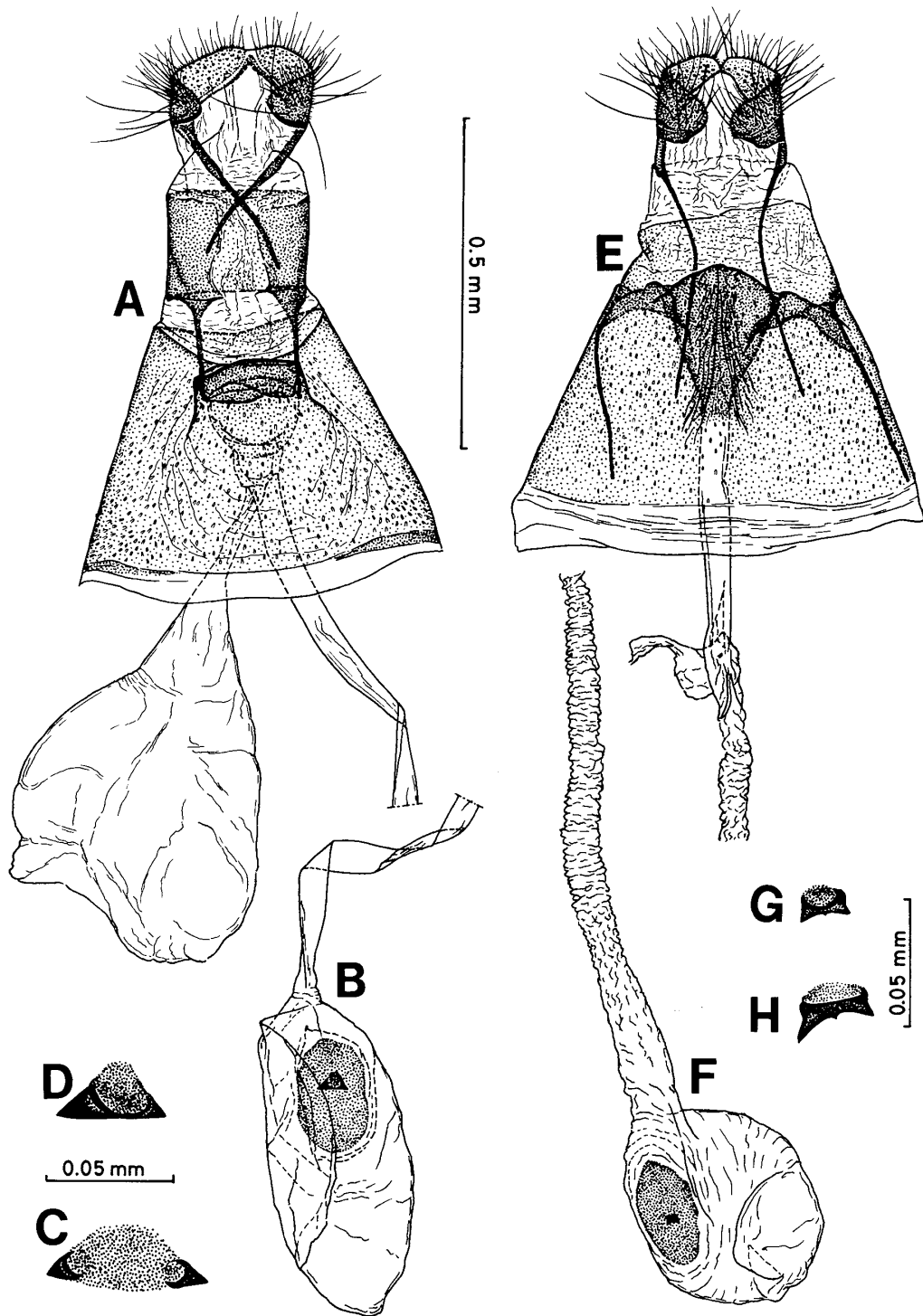


Fig. 4. A - D. *Phyllonorycter matsudai* sp. nov. A. Female genitalia in ventral view (Grc-2464, Moiwa, Sapporo, Hokkaidō); B. Bursa copulatrix (*ditto*); C. Signum, enlarged (Grc-2954, Kimitōge, Wakayama-ken); D. *Ditto* (Grc-2464). E - H. *Phyllonorycter ginnalae* (ERMOLAEV). E. Female genitalia in ventral view (Grc-2057, Kaida, Nagano-ken); F. Bursa copulatrix (*ditto*); G. Signum, enlarged (*ditto*); H. *Ditto* (Grc-2056).

of the group by the very long aedoeagus and by having a series of acute spines on its apical half.

Phyllonorycter turugisana (KUMATA)

[Figs. 1 (E & F), 5(C - F)]

Lithocolletis turugisana KUMATA, 1963, Ins. matsum., **26** : 45, fig. 26 ; *ibid.*, 1963, *ditto*, **26** : 72, pl. II (20).

The original description of *P. turugisana* was based on a single male specimen collected at Turugisan, Sikoku. Recently, the writer has examined many male and female specimens reared from larvae mining in leaves of *Carpinus* and *Ostrya* in Hokkaidô. Based on these specimens, a description will be given in the following lines for the female hitherto unrecorded.

♀. Expanse of wings : 5.0 - 7.0 mm (6.4 mm in average of 17 specimens). Length of fore wing : 2.5 - 3.5 mm (3.2 mm in average of 17 specimens).

Colour : Not different from the male described originally.

Genitalia : Symmetrical. Papilla analis short, oblique on anal margin in lateral view, covered with moderately long setae and microspines ; apophysis posterioris very long, a little longer than 7th abdominal segment, very slender in whole length. Eighth abdominal segment weakly sclerotized and not covered with scales at all ; apophysis anterioris 1/4 to 1/3 as long as apophysis posterioris and slightly wider than the latter. Sinus vaginalis situated at top of a large, membranous protuberance protruded between 8th and 7th abdominal segments ; antrum short, very weakly sclerotized ; ductus bursae narrow, long, membranous in whole length ; corpus bursae pyriform or globular, with a weakly sclerotized elliptical patch which is constricted at the middle and has a pair of thorn-like signa. Seventh abdominal segment sclerotized a little more strongly than the preceding segments, the tergite being deeply emarginate on caudal margin in dorso-ventral view, and the sternite also emarginate but very shallowly. (Six slides examined.)

Leaf mine : A tentiform blotch mine occurring on lower surface of leaf, always in disc between lateral veins, very elongate, 20 - 25 mm in long diameter, sometimes occupying the whole area between 2 lateral veins. Lower epidermis of mining part strongly contorted longitudinally, with a single median fold. Blackish excrements gathered in a mass behind pupa which is enclosed with a rough and whitish cocoon.

Further specimens examined : 45 ♂♂ & 35 ♀♀. 9 ♂♂ & 6 ♀♀, Apoi-dake, Hidaka, Hokkaidô, em. 25/iv - 13/v/1975, ex *Carpinus laxiflora* (1375) ; 1 ♂ & 1 ♀, Yûbari, Sorati, Hokkaidô, em. 17 - 24/v/1978, ex *C. cordata* (1729) ; 5 ♀♀, Moiwa, Sapporo, Hokkaidô, em. 1 - 8/v/1967, ex *Ostrya japonica* (789) ; 34 ♂♂ & 22 ♀♀, *ditto*, em. 11/v - 4/vi/1970, ex *O. japonica* (1010) ; 1 ♂ & 1 ♀, Ônuma, Osima, Hokkaidô, em. 26 - 29/v/1978, ex *O. japonica* (1790).

Food plants : *Carpinus cordata* BLUME, *Carpinus laxiflora* BLUME and *Ostrya japonica* SARGENT (Betulaceae).

Distribution. Japan (Hokkaidô ; Sikoku).

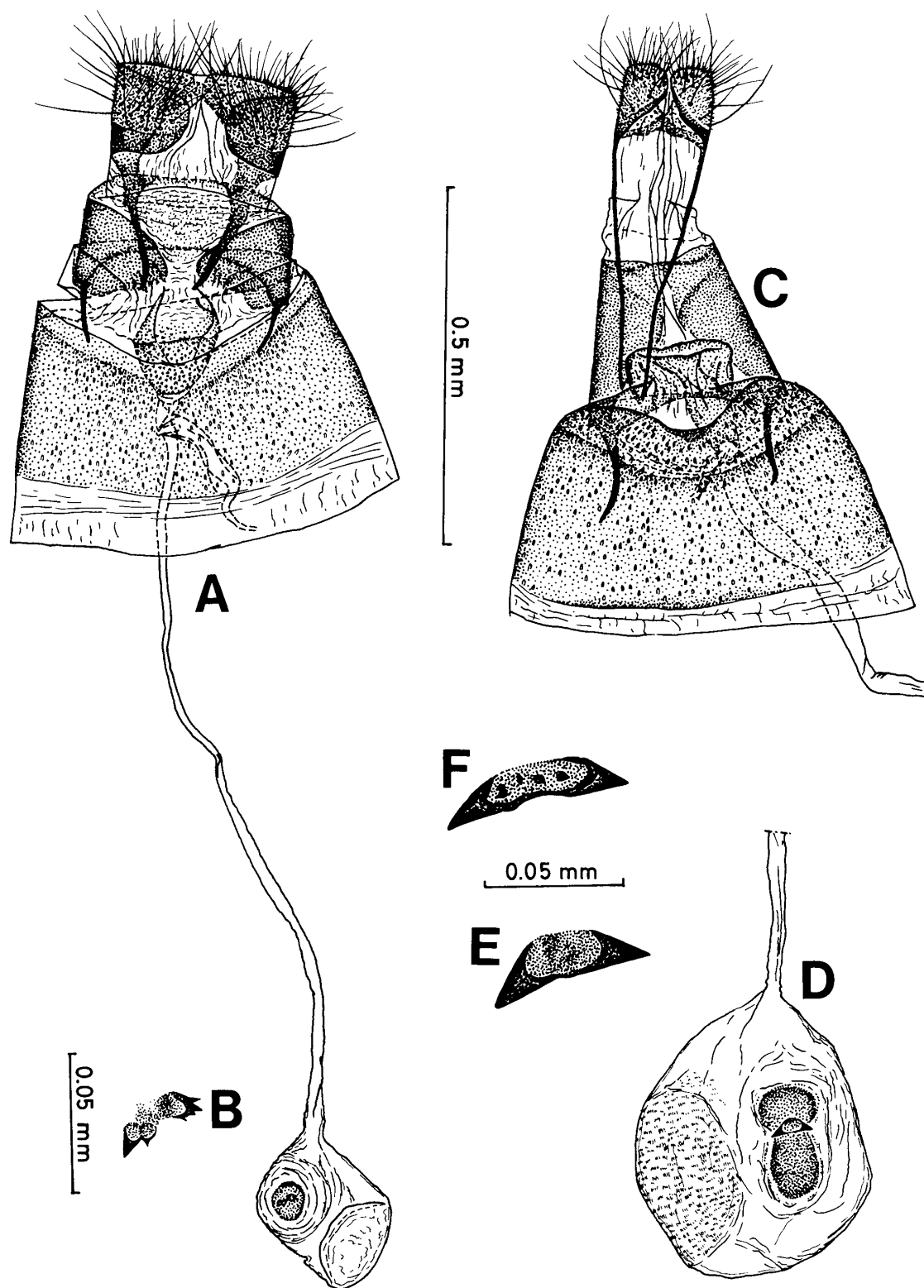


Fig. 5. A – B. *Phyllonorycter maculata* (KUMATA). A. Female genitalia in ventral view (Grc-2199, Hakusan, Isikawa-ken); B. Signum, enlarged (*ditto*). C – F. *Phyllonorycter turugisana* (KUMATA). C. Female genitalia in ventral view (Grc-1572, Moiwa, Sapporo, Hokkaidō, ex *Ostrya japonica*); D. Bursa copulatrix (*ditto*); E. Signum, enlarged (*ditto*); F. *Ditto* (Grc-1996, Apoi-dake, Hidaka, Hokkaidō, ex *Carpinus laxiflora*).

Remarks. The food plants mentioned above are new to *P. turugisana*. In female genitalia this species is clearly distinguished from *P. carpini* (KUMATA) and *P. ostryae* (KUMATA) by the situation of the sinus vaginalis and by the quadrangular antrum.

Phyllonorycter maculata (KUMATA)

[Fig. 5 (A & B)]

Lithocolletis maculata KUMATA, 1963, *Ins. matsum.*, **25** : 65, fig. 9 (C & D); *ibid.*, 1963, *ditto*, **26** : 71, pl. I (2).

The original description of *P. maculata* was based on the male holotype alone, which was reared from a larva mining in the leaf of *Alnus hirsuta* at Sapporo, Hokkaidô. Recently, the writer has had the chance to examine further specimens reared from *Alnus matsumurae* at Hakusan, Honsyû. On this occasion the female of *P. maculata* will be described in the following lines.

♀. Length of fore wing : 2.8 mm.

Colour : The female specimen at hand is in a rather poor condition for colour description, but it nearly agrees with the original description in colour pattern so far as examined except for the following points : — Fore wing with all spots silvery-whitish ; spaces between dorsal spots of fore wing widely blackish.

Genitalia : Symmetrical. Papilla analis moderately long, about as long as 8th abdominal segment, covered densely with long setae and microspines ; apophysis posterioris rather short, about 2/3 as long as 7th abdominal segment, widened on basal half. Eighth abdominal segment about 1/2 as long as the 7th segment, well sclerotized, not covered with scales ; apophysis anterioris very narrow, nearly 1/3 as long as apophysis posterioris. Sinus vaginalis small, shallow ; antrum covered with minute spines ; ductus bursae slender, long, membranous in whole length ; corpus bursae rather small, globular, with a round sclerite, which has a pair of lacinated, short signa. (One slide examined.)

Further specimens examined : 1 ♂ & 1 ♀. 1 ♀, Hakusan, Isikawa-ken, Honsyû, em. 10/viii/1976, ex *Alnus matsumurae*, I. TOGASHI leg. ; 1 ♂, *ditto*, em. 25/vii/1977, ex *A. matsumurae*, I. TOGASHI leg.

Food plants : *Alnus hirsuta* TURCZANINOW and *Alnus matsumurae* CALLIER (Betulaceae).

Distribution. Japan (Hokkaidô ; Honsyû).

Remarks. Although *P. maculata* is quite different from *P. rajella* (LINNÉ) (= *Lithocolletis strigulatella* ZELLER : KUMATA, 1963) in colour pattern, it is very similar to the latter in male and female genitalia. However, the former species is separated from the latter by the length of the apophysis posterioris in female genitalia. In *P. rajella* the apophysis posterioris very long, usually much longer than the 7th abdominal segment, while in *P. maculata* about 2/3 as long as that segment.

Phyllonorycter dakekanbae (KUMATA)

[Figs. 1 (G), 6 (A – D)]

Lithocolletis dakekanbae KUMATA, 1963. Ins. matsum., **25** : 75, fig. 14 (E) ; *ibid.*, 1963, ditto, **26** : 72, pl. III (33).

Having examined the present series of material, the writer will add the following characters to the original description which was based on the male holotype alone.

♀. Expanse of wings : 6.2 – 8.0 mm (7.3 mm in average of 5 specimens). Length of fore wing : 3.0 – 3.9 mm (3.4 mm in average of 6 specimens).

Colour : Fore wing golden ochreous, slightly tinged with red, with white markings ; medio-basal streak extremely slender, sometimes interrupted by ground colour near its middle, without any dark marginal scales ; 1st costal strigula at basal 1/4 of wing, detached from medio-basal streak in some specimens ; a small dorsal spot at basal 1/6 of wing, sometimes prolonged narrowly to base along dorsal margin of wing ; a median fascia sometimes angulated outwardly, and interrupted by ground colour at the angle in a few specimens ; further 3 costal and 2 dorsal strigulae slender, perpendicular to wing margins ; an apical blackish spot represented by a few scales, which are arranged in irregular rows ; cilia without dark fringe-line.

Genitalia : Slightly asymmetrical in length of apophyses posteriores. Papilla analis short, covered with long setae and microspines, with a weakly sclerotized, transverse band on dorsum ; apophyses posteriores about 1/3 as long as 7th abdominal segment, widened on their basal 2/5, the left apophysis being a little shorter than the right ; a short projection produced from base of each apophysis, the right projection slightly shorter than the left. Eighth abdominal segment visible merely in extremely short tergite, united with 7th abdominal segment without intersegmental membrane between them ; apophyses anteriores very weakly sclerotized, short, sometimes vestigial. Seventh segment the longest among abdominal segments, about twice as long as the 6th, well sclerotized, with sternite medianly convex along caudal margin. Sinus vaginalis small ; genital plate absent ; ductus bursae long, slender, membranous in whole length ; corpus bursae pyriform or globular, with a round sclerite, which has a pair of short, cone-shaped signa in centre. (Three slides examined.)

Leaf mine : A tentiform blotch mine occurring upon upper surface of leaf, usually elongated on mid vein or rarely on lateral vein, 10 × 15 mm – 8 × 20 mm in size. Upper epidermis of mining part dark brown along vein, strongly contorted by silken threads in mature stage, with many weak folds. Blackish excrements gathered behind cocoon in a mass within mine cavity.

Further specimens examined ; 2 ♂♂ & 6 ♀♀, Sapporo, Hokkaidō, em. 28 – 31/v/1979, ex *Betula platyphylla* var. *japonica* (1807).

Food plants : *Betula ermanii* CHAMISSO and *Betula platyphylla* SUKATCHEV var. *japonica* HARA (Betulaceae).

Distribution. Japan (Hokkaidō).

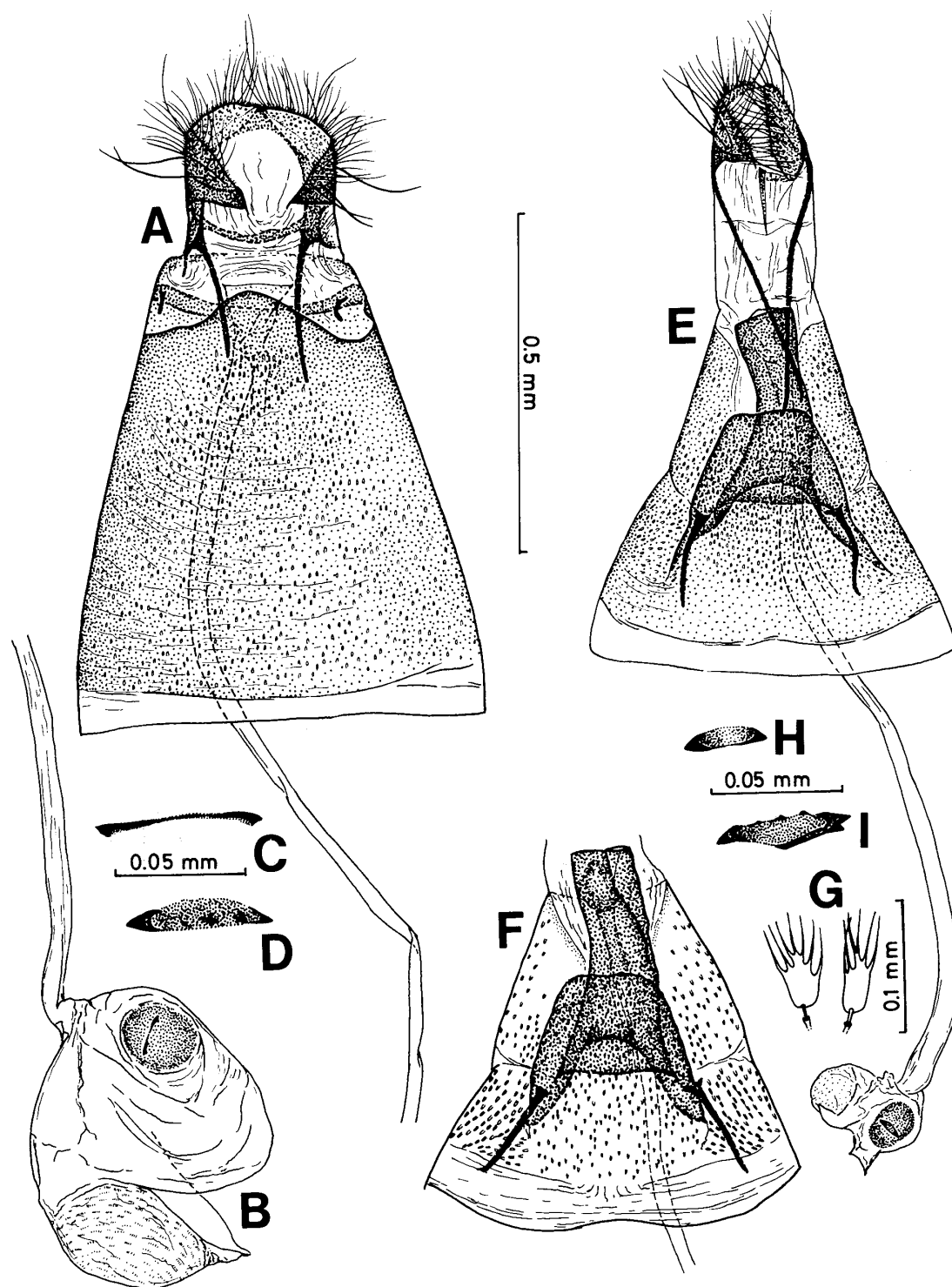


Fig. 6. A - D. *Phyllonorycter dakekanbae* (KUMATA). A. Female genitalia in ventral view (Grc-2659, Sapporo, Hokkaidō); B. Bursa copulatrix (*ditto*); C. Signum, enlarged (*ditto*); D. *Ditto* (Grc-2660). E - I. *Phyllonorycter bifurcata* (KUMATA). E. Female genitalia in ventral view (Grc-2657, Kagosima-si, *ex Celtis sinensis*); F. 7th and 8th abdominal segments of female (Grc-1585, *ditto*); G. Scales on female 7th sternite (Grc-2966, Izuhara, Tusima, *ex C. jessoensis*); H. Signum, enlarged (Grc-2657); I. *Ditto* (Grc-2966).

Remarks. *P. dakekanbae* is very similar to *P. japonica* (KUMATA), which makes a similar upper leaf mine on *Carpinus*, *Ostrya* or *Corylus*, not only in colour pattern and male genitalia but also in female genitalia. It is, however, distinguished from the latter by the short basal projections of the apophyses posteriores and by the convex caudal margin of the 7th sternite in female in addition to the male differences that were pointed out in the original description.

Phyllonorycter bifurcata (KUMATA)

[Figs. 1 (H), 6 (E – I)]

Lithocolletis bifurcata KUMATA, 1967, *Ins. matsum.*, **29**: 68, figs. 6 & 8 (7).

♀. Expanse of wings: 5.0 – 6.2 mm (5.4 mm in average of 9 specimens). Length of fore wing: 2.5 – 3.0 mm (2.7 mm in average of 9 specimens).

Colour: The specimens examined here agree well with the original description based on the single male holotype, but some ones (including males) collected from Kagosima-si, Kyûsyû, are slightly different from the description only in colour pattern as follows: — Two white thoracic stripes exactly fused with each other to form a transverse, wide band. Second fascia of fore wing without marginal dark scales as in 1st fascia; 3rd fascia complete, not interrupted by blackish scales, and internally margined with blackish scales only on dorsal half finely; a white streak near apex of wing confluent with 3rd fascia in middle of the latter; 2 or 3 rows of blackish irrorations running along termen just below apical whitish streak; fringe-line in cilia of fore wing slightly darkened.

Genitalia: Slightly asymmetrical in shape of vaginal projection. Papilla analis short, sparsely covered with long setae and microspines; apophysis posterioris slender, very long, slightly shorter than length of 7th and 8th abdominal segments combined. Eighth abdominal segment a little longer than the 7th, firmly joined with the latter without distinct intersegmental membrane, and covered with normal scales on sclerotized surface; apophysis anterioris about 1/3 as long as apophysis posterioris. Seventh abdominal segment with sternite produced posteriorly into a semicircular or trapeziform flap, which reaches basal 1/3 to 1/2 of 8th abdominal segment; deeply lacinate scales occurring on sides of the flap densely. A vaginal projection situated under flap-like 7th sternite, slightly longer than 8th abdominal segment, tubular, and slightly curved or twisted; sinus vaginalis situated on the top of this projection. Ductus bursae long, slender, membranous; corpus bursae ellipsoidal or globular, with a weakly sclerotized, elliptical patch, which has a pair of minute cone-shaped signa in the centre. (Five slides examined.)

Leaf mine: A rather small, tentiform blotch mine occurring on lower surface of leaf, usually situated near base of disc between lateral veins, 11 – 16 mm in long diameter. Lower epidermis of mining part contorted by silken threads longitudinally, with a strong median fold in fully developed stage. Cocoon rather dense, whitish, and surrounded by black excrements.

Further specimens examined: 17 ♂♂ & 9 ♀♀. 3 ♂♂, Tosasimizu, Kôti-ken, Sikoku, em. 9-25/v/1981, ex *Celtis sinensis* (2267); 3 ♂♂ & 5 ♀♀, Izuhara, Tusima, em. 25/v/1980, ex *C. jessoensis* (2069); 11 ♂♂ & 4 ♀♀, Kagosima-si, Kyûsyû, em. 10-12/vi/1970, ex *C. sinensis* (1061), K. KUSIGEMATI leg.

Food plants: *Celtis jessoensis* KOIDZUMI and *Celtis sinensis* PERSOON (Ulmaceae).

Distribution. Japan (Sikoku; Kyûsyû; Tusima).

Remarks. In female genitalia, *P. bifurcata* is similar to *P. laciniata* (KUMATA), which occurs on *Ulmus*, rather than to *P. celtidis* (KUMATA), another leaf-miner on *Celtis* in Japan. But it is immediately distinguished from the latter 2 species by the long vaginal projection in female as well as by the asymmetrical valvae in male.

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摘 要

日本産キンモンホソガ属の新種および希少種 (久万田敏夫)

キンモンホソガ属 (*Phyllonorycter* HÜBNER, 1822 = *Lithocolletis* HÜBNER, 1825) に含まれる種類は、これまで我が国から 61 種が記録されている。本報文ではさらに 2 種類を追加したが、1 種は北海道・本州にてミズナラに潜葉する新種であり、マツダキンモンホソガ *P. matsudai* KUMATA として記載した。他の 1 種は最近ウスリーから記載されたカラコギカエデキンモンホソガ *P. ginnalae* (ERMOLAEV) であり、本州中部でカラコギカエデに潜葉していた幼虫から飼育した標本に基づいて記録した。さらに、ツルギキンモンホソガ *P. turugisana* (KUMATA), ダケカンバキンモンホソガ *P. dakekanbae* (KUMATA), ナカモンキンホ

ソガ *P. maculata* (KUMATA) およびエノキヒメキンモンホソガ *P. bifurcata* (KUMATA) について、従来未知であった雌成虫を記載した。同時にツルギキンモンホソガの寄主植物を記録したが、この結果、邦産キンモンホソガ属の中で、幼虫の寄主植物が不明の種類はオオキンモンホソガ *P. gigas* (KUMATA) 1 種となった。